

# Unit Planning Guide: Grade 4 Unit 1 of 8

<b>Unit Title:</b> Understanding Place Value; Addition and Subtraction Problem Solving	<b>Pacing (Duration of Unit):</b> 5 weeks
<b>Grade:</b> 4	<b>Buffer Day(s):</b>

## Desired Results

### Transfer Goals (Priority practice standards in **bold**)

*Students will be able to independently use their learning to:*

- MP.1. **Make sense of problems and persevere in solving them.**
- MP.2. Reason abstractly and quantitatively.
- MP.3. **Construct viable arguments and critique the reasoning of others.**
- MP.4. **Model with mathematics.**
- MP.5. Use appropriate tools strategically.
- MP.6. **Attend to precision.**
- MP.7. Look for and make use of structure.
- MP.8. Look for and express regularity in repeated reasoning.

### Established Goals (2011 MA Curriculum Frameworks Standards Incorporating the Common Core State Standards)

#### Prerequisite Standards:

- 2.NBT.1: Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:
  - 2.NBT.1a: 100 can be thought of as a bundle of ten tens—called a “hundred.”
  - 2.NBT.1b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
- 3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100.
- 3.NBT.2: Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
- 3.OA.8: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies, including rounding.

#### WIDA for English Language Learners

Standard 1: ELLs **communicate** for **Social** and **Instructional** purposes within the school setting

Standard 3: ELLs **communicate** information, ideas and concepts necessary for academic success in the content area of **Mathematics**

In the lesson planning stage, teachers will need to differentiate lessons for ELLs. In order to accomplish this they will need: 1.) this curriculum map, 2.) a list of their ELLs and their proficiency levels, and 3.) appropriate language function expectations and scaffolds or supports.

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### Standards (Priority Standards in **bold**):

- **4.NBT.1:** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that  $700 \div 70 = 10$  by applying concepts of place value and division.*
- **4.NBT.2:** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons
- **4.NBT.3:** Use place value understanding to round multi-digit whole numbers to any place.
- **4.NBT.4:** Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- **4.OA.3:** Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations (addition and subtraction), including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- **4.OA.5:** (ADDITIONAL) Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*
- **4.MD.3:** (ADDITIONAL) Apply the area and **perimeter** formulas for rectangles in real-world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. \*\*At this point perimeter is reintroduced as an application of addition and subtraction. It will be revisited in a later unit to be covered in more depth.*

**\*\* Grade four expectations in this domain are limited to whole numbers less than or equal to one million.**

Meaning (\*Mostly assessed through Performance Tasks/Assessments)

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**Big Ideas:** (Statements and concepts written in teacher friendly language which reflect the important [but not obvious] generalizations we want students to be able to arrive at. These are used by the teacher to focus daily instruction.)

- The value of a number is determined by the place of its digits.
- It is necessary to understand why we compose and decompose numbers when adding or subtracting (not borrow).
- Rounding is an appropriate estimation strategy for solving problems and estimating.
- There are multiple representations for any number.
- An operation is a way of manipulating numbers to produce another number.

**Essential Questions:** (Questions which frame ongoing and important inquiries about the big ideas. They are written for students and used in daily instruction to help engage students in meaningful thinking.)

- When is estimation better than calculating the problem?
- How is place value used in rounding, comparing, and reading multi-digit numbers?
- Why do we use groups of ten?

### Acquisition (\*Mostly assessed through traditional summative assessments)

**Knowledge:** Key basic concepts, facts, and key terms (written in phrases) students should be able to recall independently.

*Students will know ...*

- Whole number place value to one million.
- A digit in the one's place represents ten times what it represents in the place to the right.
- Appropriate symbols to compare numbers by place value.
- Multiple strategies to add and subtract.
- That the formula for perimeter involves addition.

**Key Academic Vocabulary:**

- Equation
- Assess
- Ten Thousands
- Hundred Thousands
- Millions

**Skills:** The discrete skills and process students should be able to use independently.

*Students will be skilled at:*

- Reading, writing, and comparing multi-digit whole numbers up to one million using base-ten numerals, number names, and expanded form. (applying, analyzing)
- Rounding multi-digit whole numbers to any place. (applying)
- Solving multi-step addition and subtraction word problems, including those involving perimeter, with whole numbers. (applying)
- Representing problems using equations with a letter standing for the unknown quantity. (evaluating)
- Assessing the reasonableness of answers using mental computation and estimation strategies including rounding. (creating)
- Adding and subtracting multi-digit whole numbers fluently. (remembering)
- Generating a number pattern and identifying features of the pattern that are not explicit in the rule itself (evaluating)

**Resource Suggestions:**

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